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Review Article



Medicinal benefits of Minor millets

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Abstract

Diseases exist in almost all kind of population with prevalence among the ethnic groups and geographical areas. Recently, number of research is leaving particularly on major diseases like diabetes and cancer. Minor millets are an important traditional food with tremendous nutritional and medicinal application but, less concern about the importance of minor millets among the people. This review focused on to evaluate the medicinal efficacy of minor millets for document a good reference for further research on minor millets to develop the novel drugs for healthy society.

Keywords: Millets, Nutrition, Medicinal importance, Diseases.

Introduction

Life of *Homo sapiens* is depends on their nutrition are obtained from food. According to the habitat of food crops, food habit may vary from region to region. In future there may be an acute shortage of food crops, due to diverse reason, which includes natural calamity and rapid growth of human population etc., and this may leads to the unhealthy society. (Manju and Paul Khurana, 2014).

Minor millets are small coarse of grains belonging to the group of forage grass called millet (Weber 1998), belongs to the family poaceae; most of the genera belongs to the sub-family panicoideae, that can grown in extreme ecological conditions (Seetharam et al., 1989). According to the archaeological and genetic studies most of the millets had their origin in the wide region of Asia and Africa (De, 1989; Dogget, 1989; Sakamoto, 1992; Weber, 1998). Minor crops are the best source of micronutrients; the bran layer of millets also consists of B-complex vitamins and rich in micronutrients. Even millets are rich in fiber content it has the capability to digest easily. There may be an enormous amount of fat present in the millet rather than the fatty acid (Daniel et al., 2012). Deficiency of micronutrients leads to several health problems,

it retains the growth of physical and immune system. This is a common problem faced by almost all the developing countries (Kipkoriony Rutto, 2012). In African countries like Ethiopia, Nigeria, Uganda, minor millets plays a major role and more than 40% of their food system occupied by minor millets (Basavaraj et al., 2010). Minor millets not only have nutritional value but also tremendous medicinal uses. It is used in the treatment of difference diseases like Cancer, Leprosy, and Pneumonia etc., (Khoulood Bachae, et al., 2013). Dietary regulation and monitoring is a major component to avoid further disease complication. Minor millets are very good source of variety of health improving important nutrients. Hence the review revealed that the finding of health benefits of minor millets.

Medicinal importance of Minor millets

India occupy the first position in major production of minor millets, but we have less aware of their importance and its nutritional property (Ahmed et al., 2013). Millets are highly nutritious and has antioxidant properties which provide balanced nutrition (Vandana Misra et al., 2014). Pearl millet

consists of secondary metabolites like tannins, flavonoids, terpenoids, glycosides, phenol and steroids. Based on its pharmacological properties, it can cure several health problems like cancer, diarrhea and cardiovascular diseases (Hellen Mueni Ndiku and Hellen Mueni Ndiku and Mutuku Chrispus Ngule, 2015). Also finger millet is considered as one of most important minor millet, due to its high nutritional

content which includes calcium, iron, magnesium, potassium, zinc (Sonia Plaza-Wutrich et al., 2012). Calcium present in the finger millet is higher than the other nutrients and when compared to rice, finger millet is rich in protein, iron content and other medicinal properties (Singh and Raghuvanshi, 2012) which have been presented in the table 1.

Table.1 Medicinal importance of minor millets

S.No	Year	Name of the Minor Millet	Biological Activity	Reference
1	2010	Foxtail millet (<i>Setaria italica</i>)	Type-2 diabetes	Anju Thathola et al., 2010
2	2011	Finger millet (<i>Eleusine coracanda</i>)	Diabetes	Ryan et al., 2011.
3	2012	Finger millet (<i>Eleusine coracana</i>)	Maintain body temperature during rainy season.	Pragya Singh and Rita Singh., 2011.
4	2012	Finger millet (<i>Eleusine coracanda</i>)	Cardiovascular disease, Colon cancer, constipation, Diverticulosis, wound healing.	Mathanghi et al., 2012.
5	2012	Kodo millet (<i>Paspalum scrobiculatum</i>)	Severity of asthma, migraine attacks, reduce high blood pressure, diabetic, Heart disease, atherosclerosis and heart attack.	Veenu Verma and Patel., 2012.
6	2013	Little millet (<i>Wheat semoline</i>)	Diabetes	Sunanda Itagi et al., 2013
7	2013	Pearl millet (<i>Pennisetum glaucum</i>)	Neuro -degenerative disorder, Diabetes mellitus, Nephritis, Rheumatism, Alzhiemer disease, Cataracts, Cardiovascular disease, Acute liver toxicity and DNA damage.	Oduola., 2013.
8	2013	Banyard millet (<i>Echinochola frumentacea</i>)	Diabetes mellitus, obesity,hyperlipidemia.	Surekha et al., 2013
9	2013	Finger millet (<i>Eleusine coracanda</i>)	Ascaris, folk remedy for leprosy, and liver disease.	Khoulood et al., 2013.
10	2014	Pearl millet (<i>Pennisetum glaucum</i>)	Cancer, cardio vascular disease,reducing tumor incidence, lowering blood pressure.	Azhari et al., 2014.

11	2014	Finger millet (<i>Eleusine cora canda</i>)	Diabetes mellitus, gastrointestinal tract disorder.	Gull et al ., 2014
12	2014	Kodo millet (<i>Paspalum scrobiculatum</i>)	Coronary heart disease, Diabetes.	Vandana Mishra et al., 2014
13	2014	Kodo millet (<i>Paspalum scrobiculatum</i>)	Diabetes	Manju and Paul Khurana, 2014
14	2015	Pearl millet (<i>Pennisetum glaucum</i>)	Gastrointestinal disease, and Ulser	Hellen Mueni Ndiku and Mutuku Chrispus Ngule.,(2015).
15	2015	Finger millet (<i>Eleusine cora canda</i>)	Cancer, diabetes.	Abdullahi Abubakar et al., 2015.
16	2015	Ethiopian finger millets (<i>Eeleusine cora canda</i>)	Diabetes, Blood pressure, Anemia, stomach cancer, Alzheimer.	Tsegaye Birhanu et al ., 2015
17	2015	Finger millet (<i>Eleusine cora canda</i>)	Cancer	Travis and Manish, 2015.
		Kodo millet (<i>Paspalum scrobiculatum</i>)	Diabetes	
		Proso millet(<i>Panicum miliare</i>)	Liver disease	
		Japanese Banyard millet (<i>Echinochola es cuenta</i>)	Tumor necrosis.	
		Indian Banyard millet (<i>Echinochola frumentaceae</i>)	Diabetes	

Conclusion

Tough it has the high fiber, nutritional and medicinal properties it has less attention among the farmer and public. In recent years, farmers are focusing only the major crops not the minor. But micronutrient is important for the balanced diet. Micronutrients deficiency leads to number of health related problems. Minor millets are the best source for nutrients and medicine, but the minor millets are considered as poor millets and it has less attention. We discussed the medicinal importance about the minor millets of various researches. Hence we suggested through this review that there is an urgent need to have more attention and consideration on minor millets to avoid various health problems for developing healthy society.

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